



Overview

Points To Remember About Juvenile Arthritis

- Juvenile arthritis is the term used to describe arthritis, or inflammation of the joints, in children.
- The most common symptoms of juvenile arthritis are joint swelling, pain, and stiffness that don't go away.
- Juvenile arthritis is usually an autoimmune disorder. In an autoimmune disorder, the immune system attacks some of the body's own healthy cells and tissues.
- To diagnose juvenile arthritis, a doctor may perform a physical exam, ask about family health history, and order lab or blood tests, and x-rays.
- Juvenile arthritis can make it hard to take part in social and after-school activities, and it can make schoolwork more difficult. But, all family members can help the child both physically and emotionally.
- Exercise is key to reducing the symptoms of arthritis and maintaining range of motion of the joints.
- Inflammation inside of the eye and growth problems may also occur with juvenile arthritis.

Juvenile arthritis is a term that describes arthritis in children. “Arthritis” means joint inflammation. Arthritis refers to a group of diseases that cause pain, swelling, stiffness, and loss of motion in the joints. A joint is where two or more bones come together. Juvenile arthritis commonly affects the knees and the joints in the hands and feet.

There are more than 100 arthritic or rheumatic diseases that may affect the joints but can also cause pain, swelling, and stiffness in other supporting structures of the body such as muscles, tendons, ligaments, and bones. Some rheumatic diseases can also affect other parts of the body, including various internal organs.

Children can develop almost all types of arthritis that affect adults, but the most common type

that affects children is *juvenile idiopathic arthritis*.

Juvenile idiopathic arthritis is an umbrella term, or classification system, for all of the more specific types of chronic, or long-lasting, arthritis in children. These conditions used to fall under the term, juvenile rheumatoid arthritis, which is no longer used.

Who Gets

In the United States, juvenile arthritis and other rheumatic conditions affect nearly 294,000 children age 0 to 17.

Types

There are seven separate subtypes of juvenile idiopathic arthritis, each with distinct symptoms. However, with every subtype, a child will have arthritis symptoms of joint pain, swelling, tenderness, warmth, or stiffness that last for more than 6 continuous weeks.

The subtypes are:

- **Systemic juvenile idiopathic arthritis (formerly known as systemic juvenile rheumatoid arthritis).** Systemic means the arthritis can affect the whole body, rather than just a specific organ or joint. A child has arthritis with, or that was preceded by, a fever that has lasted for at least 2 weeks. The fever has come and gone, but spiked, or hit its highest temperature, for at least 3 days. The fever occurs with at least one or more of the following:
 - Generalized enlargement of the lymph nodes.
 - Enlargement of the liver or spleen.
 - Inflammation of the lining of the heart (pericarditis) or the lungs (pleuritis).
 - The characteristic rheumatoid rash, which is flat, pale, pink, and generally not itchy. The individual spots of the rash are usually the size of a quarter or smaller. They are present for a few minutes to a few hours, and then disappear without any changes in the skin. The rash may move from one part of the body to another.
- **Oligoarticular juvenile idiopathic arthritis (formerly known as pauciarticular juvenile rheumatoid arthritis).** A child has arthritis affecting one to four joints during the first 6 months of disease. Two subcategories of this type are:
 - *Persistent oligoarthritis*, which means the child never has more than four joints involved throughout the disease course.
 - *Extended oligoarthritis*, which means that more than four joints are involved after the first 6 months of the disease.
- **Polyarticular juvenile idiopathic arthritis – rheumatoid factor negative (formerly known as polyarticular juvenile rheumatoid arthritis – rheumatoid factor negative).** A child has arthritis in five or more joints during the first 6 months of disease, and all tests for rheumatoid factor (proteins produced by the immune system that can attack healthy

tissue, which are commonly found in rheumatoid arthritis and juvenile arthritis) are negative.

- **Polyarticular juvenile idiopathic arthritis – rheumatoid factor positive (formerly known as polyarticular rheumatoid arthritis – rheumatoid factor positive).** A child has arthritis in five or more joints during the first six months of the disease. Also, at least two tests for rheumatoid factor, at least three months apart, are positive.
- **Psoriatic juvenile idiopathic arthritis.** A child has both arthritis and psoriasis (a skin disease), or has arthritis and at least two of the following:
 - Inflammation and swelling of an entire finger or toe (this is called dactylitis)
 - Nail pitting or splitting
 - A first-degree relative with psoriasis.
- **Enthesitis-related juvenile idiopathic arthritis.** The enthesis is the point at which a ligament, tendon, or joint capsule attaches to the bone. If this point becomes inflamed, it can be tender, swollen, and painful with use. The most common locations are around the knee and at the Achilles tendon on the back of the ankle. A child is diagnosed with this condition if he or she has both arthritis and inflammation of an enthesis site, or has either arthritis or enthesitis with at least two of the following:
 - Inflammation of the sacroiliac joints (at the bottom of the back) or pain and stiffness in the lumbosacral area (in the lower back).
 - A positive blood test for the human leukocyte antigen (HLA) *B27* gene.
 - Onset of arthritis in males after age six years.
 - A first-degree relative diagnosed with ankylosing spondylitis, enthesitis-related arthritis, or inflammation of the sacroiliac joint in association with inflammatory bowel disease or acute inflammation of the eye.
- **Undifferentiated arthritis.** A child is said to have this condition if the signs and symptoms of the arthritis do not fulfill the criteria for one of the other six categories or if they fulfill the criteria for more than one category.

Symptoms

The most common symptom of all types of juvenile arthritis is persistent joint swelling, pain, and stiffness that is typically worse in the morning or after a nap. The pain may limit movement of the affected joint, although many children, especially younger ones, will not complain of pain.

One of the earliest signs of juvenile arthritis may be limping in the morning because of an affected knee.

Besides joint symptoms, children with systemic juvenile arthritis may have:

- A high fever that may appear and disappear very quickly.
- A skin rash that may appear and disappear very quickly.
- Swollen lymph nodes located in the neck and other parts of the body.
- Inflammation of internal organs, including the heart (fewer than half of the cases) and the lungs (very rarely).

Causes

Most forms of juvenile arthritis are autoimmune disorders in which the body's immune system – which normally helps to fight off bacteria or viruses—mistakenly attacks some of its own healthy cells and tissues. The result is inflammation, marked by redness, heat, pain, and swelling. Inflammation can cause joint damage.

Doctors do not know why the immune system attacks healthy tissues in children who develop juvenile arthritis. Scientists suspect that it is a two-step process. First, something in a child's genetic makeup gives him or her a tendency to develop juvenile arthritis; then an environmental factor, such as a virus, triggers the development of the disease.

Not all cases of juvenile arthritis are autoimmune, however. Recent research has shown that some people, such as many with systemic arthritis, have what is called an *autoinflammatory* condition. Although the two terms sound similar, the disease processes behind autoimmune and autoinflammatory disorders are different.

Autoimmune Disorders

When the immune system is working properly, foreign invaders such as bacteria and viruses provoke the body to produce proteins called antibodies. Antibodies attach to these invaders so the immune system can recognize and destroy them. In an autoimmune reaction, the antibodies attach to the body's own healthy tissues by mistake, signaling the body to attack them. Because they target the self, these proteins are called autoantibodies.

Autoinflammatory Disorders

Like autoimmune disorders, autoinflammatory conditions also cause inflammation. And like autoimmune disorders, they also involve an overactive immune system. However, autoinflammation is not caused by autoantibodies. Instead, autoinflammation involves a more primitive part of the immune system that, in healthy people, causes white blood cells to destroy harmful substances. When this system goes awry, it causes inflammation for unknown reasons. Besides inflammation, autoinflammatory diseases often cause fever and rashes.

Diagnosis

For a doctor to diagnose your child with juvenile arthritis, symptoms must have started before age 16. Doctors usually suspect juvenile arthritis, along with several other possible conditions, when they see children with persistent joint pain or swelling, unexplained skin rashes, and fever associated with swelling of lymph nodes or inflammation of internal organs. A doctor also considers a diagnosis of juvenile arthritis in children with an unexplained limp or excessive clumsiness.

There is no single test that a doctor can use to diagnose juvenile arthritis. A doctor will carefully examine your child and consider his or her medical history and the results of several tests that help confirm juvenile arthritis or rule out other conditions. Specific findings or problems that relate to the joints are the main factors that go into making a juvenile arthritis diagnosis.

Symptoms

When diagnosing juvenile arthritis, a doctor must consider not only the symptoms your child has, but also the length of time these symptoms have been present. Joint swelling or other joint changes that the doctor can see must be present continuously for at least 6 weeks.

You can help your child's doctor correctly diagnose juvenile arthritis by keeping a record of your child's symptoms and changes in the joints, noting when they first appeared and when they are worse or better.

Family History

It is very rare for more than one member of a family to have juvenile arthritis. But children with a family member who has juvenile arthritis are at a slightly increased risk of developing it as well.

Research shows that juvenile arthritis is also more likely in families with a history of any autoimmune disease. One study showed that families of children with juvenile arthritis are more likely to have a member with an autoimmune disease such as rheumatoid arthritis, multiple sclerosis, or thyroid inflammation (Hashimoto's thyroiditis) than are families of children without juvenile arthritis. For that reason, having an autoimmune disease in your family may raise the doctor's suspicions that your child's joint symptoms are caused by juvenile arthritis or some other autoimmune disease.

Lab Tests

Lab tests, usually blood tests, cannot alone provide the doctor with a clear diagnosis. But a doctor can use these tests to help rule out other conditions and classify the type of juvenile arthritis that your child has. A doctor may order blood tests for:

- **Anticyclic citrullinated peptide (anti-CCP) antibodies.** Anti-CCP antibodies may be detected in healthy people years before onset of clinical rheumatoid arthritis. They may predict the eventual development of undifferentiated arthritis into rheumatoid arthritis.
- **Rheumatoid factor (RF).** Rheumatoid factor, an autoantibody that is produced in large amounts in adults with rheumatoid arthritis, also may be detected in children with juvenile arthritis, although it is rare. The RF test helps the doctor differentiate among the different types of juvenile arthritis.
- **Antinuclear antibody (ANA).** An autoantibody directed against substances in the cells' nuclei, ANA is found in some juvenile arthritis patients. However, the presence of ANA in children generally points to some type of connective tissue disease, helping the doctor to narrow down the diagnosis. A positive test in a child with oligoarthritis markedly raises his or her risk of developing eye disease in the future.
- **Erythrocyte sedimentation rate (ESR or sed rate).** This blood test, which measures

how fast red blood cells fall to the bottom of a test tube, can tell the doctor if inflammation is present. Inflammation is the key sign of juvenile arthritis and a number of other conditions.

X-Rays

Your child's doctor will order x-rays if he or she suspects injury to the bone or unusual bone development. Early in the disease, some x-rays can show changes in soft tissue. In general, x-rays are more useful later in the disease, when bones may be affected.

Other Tests

Because there are many causes of joint pain and swelling, the doctor may use other lab tests to help rule out other conditions before diagnosing juvenile arthritis. Some of these conditions include:

- Physical injury.
- Bacterial or viral infection.
- Lyme disease.
- Inflammatory bowel disease.
- Lupus.
- Dermatomyositis.
- Some forms of cancer.

Treatment

The main goals of treatment are to:

- Preserve a high level of physical and social functioning.
- Maintain a good quality of life.

To achieve these goals, doctors recommend treatments that:

- Reduce swelling.
- Maintain full movement in the affected joints.
- Relieve pain.
- Prevent, identify, and treat complications.

Most children with juvenile arthritis need a combination of medication and other treatments to reach these goals.

Medications

- **Nonsteroidal anti-inflammatory drugs (NSAIDs).** Aspirin, ibuprofen, naproxen, and naproxen sodium are examples of NSAIDs. They are often the first type of medication doctors prescribe for juvenile arthritis. All NSAIDs work similarly by blocking substances

called prostaglandins that add to inflammation and pain. However, each NSAID is a different chemical, and each has a slightly different effect on the body. For unknown reasons, some children seem to respond better to one NSAID than another. NSAIDs should only be used at the lowest dose possible for the shortest time needed.

You can buy some NSAIDs over the counter, while several others, including a subclass called COX-2 inhibitors, need a prescription.

All NSAIDs can have significant side effects, so consult your child's doctor before giving any of them. Your child's doctor should monitor your child if he or she takes NSAIDs regularly to control juvenile arthritis.

Side effects of NSAIDs include stomach problems; skin rashes; high blood pressure; fluid retention; and liver, kidney, and heart problems. The longer a person uses NSAIDs, the more likely he or she is to have side effects, ranging from mild to serious. Many other medicines cannot be taken when a person is taking NSAIDs because NSAIDs alter the way the body uses or eliminates these other medicines.

- **Disease-modifying antirheumatic drugs (DMARDs).** If NSAIDs do not relieve symptoms of your child's juvenile arthritis, the doctor may prescribe this type of medication. DMARDs slow the progression of juvenile arthritis, but because they may take weeks or months to relieve symptoms, they often are taken with an NSAID. Although there are many different types of DMARDs, many doctors prescribe one called methotrexate.

Researchers have learned that methotrexate is safe and effective for some children with juvenile arthritis whose symptoms are not relieved by other medications. Because children only need small doses of methotrexate for relief of arthritis symptoms, potentially dangerous side effects rarely occur. The most serious complication can be liver damage, which a doctor can help prevent with regular blood tests and check-ups. Careful monitoring for side effects is important for people taking methotrexate. When side effects are noticed early, the doctor can reduce the dose and eliminate the side effects.

- **Corticosteroids.** If your child has very severe juvenile arthritis, stronger medicines may be needed to stop serious symptoms, such as inflammation of the sac around the heart (pericarditis). Corticosteroids, such as prednisone, may be added to the treatment plan to control severe symptoms. This medication can be given by IV (intravenous), mouth, or injection directly into a joint. Corticosteroids are powerful anti-inflammatory medicines. Corticosteroids can interfere with your child's normal growth and can cause other side effects, such as a round face, weakened bones, and an increased chance of having infections. Once the medication controls severe symptoms, the doctor will reduce the dose gradually and, in time, stop it completely. It can be dangerous to stop taking corticosteroids suddenly. Carefully follow the doctor's instructions about how to take or reduce the dose. For inflammation in one or just a few joints, injecting a corticosteroid compound into the affected joint or joints can often bring quick relief without the systemic side effects of oral or IV medication.
- **Biologic agents.** If your child has received little relief from other medications, he or she may be given one of a newer class of medications called biologic response modifiers, or biologic agents. These are based on compounds made by living cells. Tumor necrosis factor (TNF) inhibitors are biologic agents that work by blocking the actions of TNF, a

naturally occurring protein in the body that helps cause inflammation. Other biologic agents block other inflammatory proteins, such as interleukin-1 or immune cells called T cells. Different biologics tend to work better for the different subtypes of the disease.

All medicines can have side effects. Some medicines and side effects are mentioned in this publication. Some side effects may be more severe than others. You should review the package insert that comes with your medicine and ask your child's health care provider or pharmacist if you have any questions about the possible side effects.

Other Treatments

- **Physical therapy.** A regular, general exercise program is an important part of a child's treatment plan. Exercise can help to maintain muscle tone and preserve and recover the range of motion of the joints. A physiatrist (rehabilitation specialist) or a physical therapist can design an appropriate exercise program for your child. The specialist also may recommend using splints and other devices to help maintain normal bone and joint growth.
- **Complementary and alternative therapies.** Many adults seek alternative ways of treating arthritis, such as special diets, supplements, acupuncture, massage, or even magnetic jewelry or mattress pads. Research shows that increasing numbers of children are using alternative and complementary therapies as well.

Although there is little research to support many alternative treatments, some people seem to benefit from them. If your child's doctor feels the approach has value and is not harmful, you can incorporate it into the treatment plan. However, do not neglect regular health care or treatment of serious symptoms.

Who treats

Treating juvenile arthritis often requires a team approach that involves your child and his or her family and a number of different health professionals.

Ideally, your child's care should be managed by a pediatric rheumatologist, who is a doctor who has been specially trained to treat the rheumatic diseases in children. However, many pediatricians and "adult" rheumatologists also treat children with juvenile arthritis. Because there are relatively few pediatric rheumatologists and they are mainly concentrated at major medical centers in metropolitan areas, children who live in smaller towns and rural areas may benefit from having a doctor in their town coordinate care through a pediatric rheumatologist. Many large medical centers now conduct outreach clinics, in which doctors and a supporting team travel from large cities to smaller towns for one or two days to treat local patients.

Other members of your child's health care team may include:

- **Physical therapist.** This health professional can work with your child to develop a plan of exercises that will improve joint function and strengthen muscles without causing further harm to affected joints.
- **Occupational therapist.** This health professional can teach ways to protect joints, minimize

pain, conserve energy, and exercise. Occupational therapists specialize in the upper extremities (hands, wrists, elbows, arms, shoulders, and neck).

- Counselor or psychologist. Being a child or adolescent with a chronic disease isn't easy, for the child or his or her family. Your child may benefit from sorting out his or her feelings with a psychologist or counselor trained to help children in this situation. Your family members may benefit from counseling as well.
- Ophthalmologist. If your child's medications or form of arthritis can affect the eyes, catching problems early can help keep them from becoming serious. All children with juvenile arthritis need to have regular exams by an ophthalmologist (eye doctor) to detect eye inflammation.
- Dentist and orthodontist. Thorough brushing and flossing of the teeth can be difficult if your child's hands are affected by arthritis. If your child's jaw is also affected by arthritis, he or she may have a hard time opening the mouth for proper brushing. Therefore, your child needs regular dental exams. Because juvenile arthritis can also affect the alignment of the jaw, children with this disease should also see an orthodontist.
- Orthopaedic surgeon. Some children need surgery to help minimize or repair the effects of their disease. Orthopaedic surgeons are doctors who perform surgery on the joints and bones.
- Dietitian. For children with chronic diseases, good nutrition is particularly important. A dietitian can help design a nutritious diet that will benefit the whole family.
- Pharmacist. A pharmacist is a good source of information about medications, including possible side effects and other drugs that could interact with them. If your child has trouble swallowing large pills or taking other medication, the pharmacist may be able to suggest different ways to take the medication or may be able to prepare or help you get kid-friendly versions of some medications.
- Social worker. A social worker can help your child and your family deal with life and lifestyle changes caused by arthritis. A social worker also can help you find helpful resources for your child.
- Rheumatology nurse. A rheumatology nurse likely will be closely involved in your child's care, serving as the main point of contact with your doctor's office about appointments, tests, medications, and instructions.
- School nurse. For a school-age child, the school nurse also may be part of your health care team, particularly if your child needs to take medications regularly during school hours.

Living With

Juvenile arthritis affects the entire family, all of whom must cope with the special challenges of this disease. Juvenile arthritis can strain your child's participation in social and after-school activities and make schoolwork more difficult. Your family members can do several things to help your child physically and emotionally.

- Get the best care possible. Ensure that your child receives appropriate medical care and follows the doctor's instructions. If possible, have a pediatric rheumatologist manage your child's care. If such a specialist is not close by, consider taking your child just once or

twice a year. A pediatric rheumatologist can devise a treatment plan and consult with your child's doctor, who will help you carry it out and monitor your child's progress.

- Learn as much as you can about your child's disease and its treatment. (The resources listed at the end of this publication can help.) Many treatment options are available, and because juvenile arthritis is different in each child, what works for one may not work for another. If the medications that the doctor prescribes do not relieve symptoms or if they cause unpleasant side effects, you and your child should discuss other choices with the doctor. Your child can be more active when symptoms are under control.
- Consider joining a support group. Try to find other parents and kids who face similar experiences. It can help you – and your child – to know you're not alone. Some organizations have support groups for people with juvenile arthritis and their families.
- Treat your child as normally as possible. Try not to cut your child too much slack just because he or she has arthritis. Too much coddling can keep your child from being responsible and independent and can cause resentment in siblings.
- Encourage exercise and physical therapy for your child. For many young people, exercise and physical therapy play important roles in managing juvenile arthritis. Parents can arrange for children to participate in activities that the doctor recommends. During symptom-free periods, many doctors suggest playing team sports or doing other activities. The goal is to help keep the joints strong and flexible, to provide play time with other children, and to encourage appropriate social development.
- Work closely with your child's school. Help your child's school to develop a suitable lesson plan, and educate your child's teacher and classmates about juvenile arthritis. Some children with juvenile arthritis may be absent from school for prolonged periods and need to have the teacher send assignments home. Some minor changes—such as having an extra set of books or leaving class a few minutes early to get to the next class on time – can be a great help. With proper attention, most children progress normally through school.
- Talk with your child. Explain that getting juvenile arthritis is nobody's fault. Some children believe that juvenile arthritis is a punishment for something they did. Let your child know you are always available to listen, and help him or her in any way you can.
- Work with therapists or social workers. They can help you and your child adapt more easily to the lifestyle changes juvenile arthritis may bring.

Exercise Is Key to Reducing Symptoms

Although pain sometimes limits physical activity, exercise is key to reduce the symptoms of juvenile arthritis and maintain function and range of motion of the joints.

Most children with juvenile arthritis can take part fully in physical activities and some sports when their symptoms are under control. Swimming is a good exercise because it uses many joints and muscles without putting weight on the joints. A doctor or physical therapist can recommend exercises and activities.

During a disease flare your child's doctor may advise limiting certain activities, depending on the joints involved. Once the flare is over, your child can start regular activities again.

Disease Course

The course of juvenile arthritis is different for each child. Typically, there are periods when the symptoms are better or disappear (remissions) and times when symptoms “flare,” or get worse. Some children may have just one or two flares and never have symptoms again, while others may have many flares or even have symptoms that never go away.

Juvenile arthritis can cause other health problems for children, including inflammation inside of the eye and growth problems.

Eye Inflammation

Eye inflammation is a potentially severe complication that commonly occurs in children with oligoarthritis, but can also be seen in other types of juvenile arthritis. Eye diseases, such as iritis or uveitis, can be present at the beginning of arthritis but often develop some time after a child first develops juvenile arthritis. Very commonly, juvenile arthritis-associated eye inflammation does not cause any symptoms and is found only during an eye exam. Therefore, all children with juvenile arthritis need to have regular eye exams, including a special exam called a slit lamp exam.

Growth Problems

Some children with juvenile arthritis have growth problems. Depending on the severity of the disease and the joints involved, bone growth at the affected joints may be too fast or too slow, causing one leg or arm to be longer than the other, for example, or resulting in a small or misshapen chin. Overall growth also may be slowed. Doctors are exploring the use of growth hormone to treat this problem. Juvenile arthritis may also cause joints to grow unevenly.

Research Progress

Causes of Juvenile Arthritis

Scientists supported by the National Institutes of Health (NIH) are also investigating the possible causes of juvenile arthritis. Researchers suspect that both genetic and environmental factors are involved in development of the disease, and they are studying these factors in detail. To help explore the role of genetics, the National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS) has a research registry for families in which two or more siblings have juvenile arthritis.

Eventually, gene therapy, or therapy based on the functioning of genes, may be used to treat pediatric rheumatic disorders by monitoring children’s response to treatment or by predicting who is most likely to respond to a particular treatment regimen.

One recent NIAMS-supported study—the largest collaborative study of juvenile idiopathic arthritis to date—identified 14 genes linked to juvenile idiopathic arthritis and confirmed three previously discovered genes. The study also suggested that another 11 genetic regions might be involved in the disease.

Other Areas of Research

Other areas of research supported by the NIH are widely varied and include studies of the following:

- Improved understanding of the biology and use of tumor necrosis factor inhibition in juvenile arthritis.
- Biomarkers of macrophage activation syndrome (MAS) a potentially life-threatening complication in systemic juvenile arthritis.
- The determinants of health-related quality of life in children with juvenile arthritis.
- The causes and consequences of sleep-disordered breathing in children with juvenile arthritis.
- The effectiveness of daily calcium supplementation for increasing bone mineral density in children with juvenile arthritis. A randomized, controlled trial of calcium supplementation was conducted among children with juvenile arthritis. The trial found that supplementation resulted in a small, but statistically significant, increase in total body bone mineral density, compared with a placebo in children with juvenile arthritis.
- The impact of chronic and recurrent pain on children.
- Ways to limit the impact of pain on children's functioning.
- The role of the innate immune system in juvenile arthritis and the environmental triggers that might initiate the disease.
- A randomized, controlled trial of the effectiveness of a combination of methotrexate, corticosteroids, and etanercept compared to the standard therapy of methotrexate in keeping disease inactive in children with new onset polyarthritis.
- A study of juvenile arthritis patients to see if genetic analysis can predict which patients will experience a flare of the disease after stopping TNF treatment.
- A study of the expression of thousands of genes in the blood cells of children with juvenile arthritis to learn how these genes are affected by specific treatments or if their expression can predict how a patient will respond to certain medications.

Related Resources

U.S. Food and Drug Administration

Toll free: 888-INFO-FDA (888-463-6332)

Website: <https://www.fda.gov>

[Drugs@FDA](https://www.accessdata.fda.gov/scripts/cder/daf) at <https://www.accessdata.fda.gov/scripts/cder/daf>. [Drugs@FDA](https://www.accessdata.fda.gov/scripts/cder/daf) is a searchable catalog of FDA-approved drug products.

Centers for Disease Control and Prevention, National Center for Health Statistics

Website: <https://www.cdc.gov/nchs>

NIH Osteoporosis and Related Bone Diseases National Resource Center

Website: <https://www.bones.nih.gov>

American Academy of Orthopaedic Surgeons

Website: <https://www.aaos.org>

Arthritis Foundation

Website: <https://www.arthritis.org>

Juvenile Arthritis Foundation

Website: <https://juvenilearthritis.org>

If you need more information about available resources in your language or other languages, please visit our webpages below or contact the NIAMS Information Clearinghouse at NIAMSInfo@mail.nih.gov.

- [Asian Language Health Information](#)
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